

**THE LAND SHELLS OF CALHOUN FALLS, S. C.**

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Local lists of shells, no matter how incomplete they may be, are always useful to those interested in the study of geographical distribution, and without them no work could be done in that branch to any degree of satisfaction.

Many collectors fail to make these lists because they deem them of little special interest, and because they feel they can give no account of any new thing. These lists of themselves form no article of great interest when taken singly, but when a large number of them, covering a large area of country, are brought together, they form a most valuable source of information to the specialist. It should be the aim of every naturalist to add his share to the sum of general knowledge, no matter how small that share may be, and for these reasons I feel it not wasted time to give the result of one day's hunt, in what most likely is an unworked locality.

This day's work took place at a bad time of year, on a cold, bright morning on the 9th of December, 1900, at a place known on the map as Calhoun Falls. I say on the map, as the Falls proper are a long three miles from the hotel, general store and saw mill bearing that name. They treated me well, however, at the hotel, as some sportsmen had spent the day there and had added a quantity of delicious game to the usual southern country fare of "hog and hominy." Between the combined resources of hotel and sportsmen, I put away one of the best dinners I ever sat down to, and one which I shall long remember.

Calhoun Falls, S. C., is in Abbeyville county, on the Sea Board Air Line, about twenty-five miles southwest of Greenwood, South Carolina, and fifty miles east of Athens, Georgia.

The country two miles back from the river is of a very sandy soil, interspersed with red clay, and the timber principally pine. The creeks are all small, sandy and swift, running over a bottom composed only of sand, and occasionally a few yards of bare rock buried in sand; they contain no molluscan life whatever, and time spent in their investigation is wasted.

The Savannah River, at a point about half a mile below the railroad bridge, breaks into a series of falls, or rather rapids, full of small

islands and rocks, and two miles below attains a width of nearly three-fourths of a mile. A few of these islands are of fairly large extent and heavily wooded with pine and oak.

The rapids extend for a distance of five miles and bear the same character throughout, the rocks all rest upon a clean, sandy bed, and over the entire length of the rapids I could find no trace of water shells of any description. The streams in this section of the country all seem to be alike in this respect, with the exception, perhaps, of Clear Creek, a stream about three miles from this point, which is said to contain large quantities of *Unio* of which, however, I have had none other than oral evidence.

The banks of the river on the South Carolina side are in many places very steep and covered with hard-wood timber. I may here state that it is only wasted time to attempt to find shells under pine logs. I have tried it often and always with the same results, namely, a tired back, torn hands, a considerable gain in bodily temperature, and few if any specimens to add to the bottle. As an athletic exercise it is without an equal, but from a collector's point of view, a decided failure.

Beginning at the railroad bridge and working down stream, comes a stretch of bottom land covered by one of the most dense cane brakes I ever saw, extending to the water edge, and which gives evidence of being submerged at high water. I turned many logs at this point but they were in too close contact with the clear sand and produced nothing.

Beyond and below this cane brake the banks of the river rise at a distance of fifty yards from the water to quite steep hills, thickly timbered with oak and maple, and the soil of a much more solid consistency. Here, under logs on the hill side, I found *Polygyra appressa* Say, *Polygyra stenotrema* Fer. and several *Zonitoides*, together with a few specimens of *Polygyra tridentata* Say. Under one log I found a colony of *Polygyra barbigera* Redf., but a most careful search under many other similar logs near by failed to discover any more. On the bottom land several water-soaked and spongy logs produced *Gastrodonta interna* Say and *Zonitoides elliotti* Say in great numbers, they were all obtained by picking the wood apart with a knife and shaking out the shells into a handkerchief. The contrast between the light delicate pink of the former and the pale green of the latter was very marked and beautiful.

After leaving this part of the bank I traversed two miles of red clay soil, covered with pine and shrub, which, though most carefully searched, produced nothing whatever. Below this, several streams were crossed, containing nothing but the usual sand and water.

The banks now become very steep and in many places the bare rocks are exposed, badly cracked and weather-worn. Here in the crevices of the limestone, so far back as to require the aid of a stick to reach them, I found some beautiful specimens of *Polygyra obstricta* Say, a few alive and many dead, at the base of the cliff.

Numerous specimens of *Polygyra* and *Pyramidula* were found among the loose and broken fragments of stone, which were here piled in great profusion, between the cliff and the river, but which were all above high-water mark.

Beyond this place, where the rocks are less numerous and covered by a rich, black soil, I took a few fine specimens of *Polygyra albolarbris major* Binn. alive and also found many dead and broken shells.

From this point I left for the hotel, by what I took to be a short cut through the woods but which proved to be very far from an air line. I reached home, however, after about a two hours' tramp, having spent one of the most enjoyable days I can remember, and well satisfied with the results of my trip. It must be remembered that this tramp was made at a very bad time of year and when all shells were in their winter quarters.

The following is a complete list of all the material taken :

#### SHELLS TAKEN AT CALHOUN FALLS, SOUTH CAROLINA.

*Polygyra tridentata* Say. A large, dark-colored shell, found quite plentifully among the loose rocks and broken fragments.

*Polygyra tridentata* var. A much smaller shell than the preceeding, showing a pinkish shade about the lip. Scarce, and in company with the above.

*Polygyra rugeli* Shutt. Quite common under logs.

*Polygyra inflecta* Say. Under logs and among loose stones.

*Polygyra albolarbris major* Binn. Under logs and chips in the black soil.

*Polygyra palliata* Say. Eight specimens from the heavily-timbered hill side.

*Polygyra obstricta* Say. From the cracks in the limestone cliffs.

*Polygyra appressa* Say. Among the loose stones with *tridentata*.

*Polygyra elevata* Say. Four dead shells only, in drift near the river.

*Polygyra thyroides* Say. Two dead and one living, on the hill side.

*Polygyra barbiger* Redf. A numerous colony under one log only, evidently in their winter quarters.

*Polygyra stenotrema* Fer. A small number, not common and generally distributed.

*Polygyra stenotrema exodon* Pils. Very common under the logs and loose stones. (Determined by Bryant Walker.)

*Polygyra hirsuta* Say. One or two specimens only.

*Circinaria concava* Say. Five adult and several partly-grown shells found, under leaves, logs and stones on the hill side.

*Omphalina fuliginosa* Griff. Several specimens, deep in thick beds of leaves.

*Gastrodonta intertexta* Binn. A few fine shells, in the earth under the logs.

*Gastrodonta interna* Say. Large numbers, in water-soaked logs near the river.

*Zonitoides arboreus* Say. Quite common, under the bark and in rotten wood.

*Zonitoides elliotti* Redf. Large numbers, in water-soaked logs.

*Pyramidula alternata* Say. A strongly-ribbed variety. Quite plentiful, under the large loose rocks.

*Pyramidula perspectiva* Say. Quite common, in decayed logs on the hill side.

*Pyramidula striatella* Anth. Scarce, in company with *P. striatella*.

*Helicodiscus lineatus* Say. Ten specimens, under bark of dead wood.

## NEW LAND SHELLS OF THE JAPANESE EMPIRE.

BY H. A. PILSBRY AND Y. HIRASE.

*Helicina sadoensis* Pils. & Hir., n. sp.

Shell depressed and acutely carinate, about equally convex above and below, dull red or reddish-yellow, sculptured with fine, irregular wrinkle-striae and very fine, crowded spirals above and below. Spire low-conic with somewhat convex outlines. Whorls about 4, the last convex below, not descending in front. Aperture oblique, of the